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FOREST INSECT SURVEY - EASTERN PLUMAS WORKING CIRCLE

PLUMAS NATIONAL FOREST

Season of 1940

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Berkeley, California
December 23, 1940

SUBJECT-

INDEX NO.-

Forest Insect Laboratory
Berkeley, California
December 23, 1940

FOREST INSECT SURVEY - EASTERN PLUMAS WORKING CIRCLE
PLUMAS NATIONAL FOREST
Season of 1940

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FOREST INSECT SURVEY - EASTERN PLUMAS WORKING CIRCLE

PLUMAS NATIONAL FOREST

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INTRODUCTION

The first preliminary cruise of the Eastern Plumas Working Circle to determine the general insect conditions and infestation trends was made during July, 1930 (1). At that time the Working Circle was segregated into infestation units which would facilitate the reporting of conditions encountered. During 1933, permanent sample plots were established within the several infestation units to be used in sampling the seasonal infestation trends. Seasonally since the establishment of the sample plots, cruises have been made to determine the kind and amount of infestation present on the area.

In June and July of 1940 the Eastern Plumas Area was covered in an intensive cruise by the Hazard Inventory Field Party. This intensive survey, designed in part to determine the various zones of insect hazard throughout the timbered area, also made it possible to revise the original infestation units and segregate the various stand conditions into homogeneous units which would permit a more accurate judgment and reporting of seasonal insect activity as secured through surveys of sample plots and by reconnaissances.

The insect loss survey during the current season was limited to a cruise of the seven half-section plots. Supplementary notes of current conditions was secured only by reconnaissance during the course of the plot cruises. This report is prepared to present a brief accounting of conditions encountered on the newly established infestation units.

(1) Salmon, E. A. Report of a preliminary survey of Insect Conditions in the east slope type of the Plumas National Forest, California, July 20-31, 1930. August 28, 1930

IMPRESSIONS OF CURRENT INSECT CONDITIONS

Because of differences in stand structure and insect species involved in the infestation it is difficult to make concise statements of loss conditions which will be applicable over large areas. In general, however, the following conditions within the Working Circle were encountered.

Pine loss over much of the timbered area has shown an increase over the 1939 level. The estimated pine loss for the 1940 season on virgin areas is 233 board feet per acre. The ratio of increase of this current loss over 1939 has been 1.14. Infested trees were observed to occur primarily either singly or in pairs. Occasionally, however, a group kill of 3 to 5 and even as many as 15 mature and overmature trees was encountered. Western pine beetle activity in ponderosa pine, although relatively high, is judged to be only slightly above normal or endemic condition for these stands. In contrast, the Jeffrey pine beetle was found to be exceptionally aggressive in attacks on Jeffrey pine. This increased Jeffrey pine beetle activity was particularly prevalent in the Willow Creek drainage in the east half of the Ferris Unit. The "hot spot" or center of infestation within the area covered in the loss cruise seemed to extend throughout the eastern half of the Ferris and Dixie Valley Units and is concentrated primarily in Jeffrey pine.

From basal examination of infested trees, overwintering insect broods were judged to have made quite successful larval development in most cases and were found relatively abundant in all infested trees.

INFESTATION CONDITIONS BY UNITS

A summary of insect losses recorded on the four plots which are used to sample virgin areas is given in Table I. By expanding these measured plot losses which sample conditions throughout the area, it is possible to arrive at estimates of total losses on the various infestation units. The estimated unit losses which are sampled by plot cruises are given in Table II. Unit boundaries and survey plot locations are indicated on the appended map, Figure 1.

Thompson Creek Unit

By reconnaissance, impressions are that loss conditions as measured on the sample plot at Murdock Crossing (Plot F-3) fairly well represent loss trends throughout the Thompson Creek drainage to the Jonesville Grade. Although conditions encountered do not represent an infestation of epidemic proportions, the area is well dotted with currently infested trees. On the basis of plot records, this unit has shown a continued increase in loss for the past three years.

Last Chance Unit

Plot records also indicate a continued increase in loss on this unit during the past three seasons. Current losses occurred primarily in exceptionally large trees. Although only a few infested trees per section were recorded, volume loss was considerable. It is felt that a majority of this unit represents an area of potential hazard should western pine beetle activity again reach epidemic proportions.

Ferris and Dixie Valley Units

As previously mentioned, the center of current insect activity in the Eastern Plumas Area seems to be concentrated in the Jeffrey pine stands within the boundaries of these two units. Current loss conditions which were encountered were quite similar in both unit areas. Plot cruises are not considered to adequately sample all conditions to be encountered in these two areas. However, plot loss records continue to show increasing infestations and with the supplementary notes of current conditions that were secured through reconnaissance, indications are that these stands have been most severely attacked. It was common to find infested Jeffrey pines occurring in groups of 10 or more trees. It is felt that these two units should be given priority in considering treatments designed to reduce the loss.

LOSSES ON CUTOVER AREAS

Squaw Valley and Clover Valley Units

Three plots sample loss conditions on the cutover areas. Plot summaries of losses on cutover areas is given in Table III.

In general it can be said that the increase in current loss trends on virgin areas is reflected by a corresponding increase on cutover areas. However, in all cutover areas covered by plot cruises there was no evidence of stand deterioration or more than a moderate increase over normal endemic loss conditions.

Estimates secured from plot acreages in 1934 place yearly increment at from 1.25 to 1.86 percent of the reserve stand that ranges from 1,940 to 2,640 B.M. per acre. On this basis, current losses are nearly equal to gross increment. On plot 60-23 the 1940 loss record indicates that net increment has amounted to approximately 55 percent of total. On plot 60-24, the only other cutover plot in which reserve stand volumes have been taken, current losses have exceeded gross increment by approximately 7 B.M. per acre.

There is no evidence of any continuation of the top-killing activity reported on the cutover areas in Grizzly Valley in 1937 and 1939. One noticeable group kill of young and immature trees can be observed on the ridge top to the east of Bagley Pass. No other concentrations of group loss on cutover areas was encountered.

CONTROL RECOMMENDATIONS

Plot records of current insect loss averaging 233 B.M. per acre strongly indicates the need for control action over much of the Eastern Plumas Area. Because of stand structure in areas most severely attacked, measures designed to reduce Jeffrey pine beetle infestations should be given first consideration.

4 The first seasonal survey of the Plumas area in 1933 following the preliminary coverage of the area in 1930 selected the Dixie Valley and Willow Creek Units as the only two areas within the Working Circle for which control action could be considered on the basis of the 1933 loss. Low timber values to be protected and a decreasing infestation trend during the succeeding few years made control action inadvisable. However, again in 1937 the Ferris and Dixie Valley Units were stressed as being most severely attacked by insects. In 1939 it was recommended that control measures designed to utilize high risk values offered the best opportunities for indirect control action. Here again the Ferris and parts of the Dixie Valley and Last Chance Units were selected for indirect control projects which fitted best into existing management plans.

In considering control recommendations for reducing the current infestations it is felt that plans now being developed for salvage logging in portions of the Dixie Valley Unit remain as the control method best adapted to meet the conditions of management. Because of the high loss record of the Plumas area it seems advisable and is recommended that strong efforts be made to put those plans for salvage logging of high risk trees into operation as soon as possible. After the heavy loss centers have been cleaned up and the high risk trees have been removed, expansion of the work would probably take care of needed control over remaining areas within the working circle.

It should be stressed, however, that a single coverage of an area by sanitation salvage operations may not necessarily meet all needs for insect control action. As yet insufficient information has been secured on the reaction of infestations in Jeffrey pine type stands to this type of treatment. However, taking other factors into consideration, salvage logging for the control of these infestations seems to be the control method best adapted to meet current conditions.

Table I

PLOT LOSSES - PLUMAS NATIONAL FOREST

Plot No.	1938				1939				1940 (estimated)			
	Per Section		BM per acre	Ratio '38/'37	Per Section		BM per acre	Ratio '39/'38	Per Section		BM per acre	Ratio '40/'39
	Trees	Vol. B.M.			Trees	Vol. B.M.			Trees	Vol. B.M.		
P-1	66	70,060	109	1.52	100	109,760	172	1.57	62	79,800	125	.73
P-2	82	143,120	224	.95	138	197,700	309	1.38	192	206,680	323	1.05
P-3	28	53,520	84	3.14	32	87,960	137	1.64	44	147,340	230	1.68
P-4	64	108,380	169	1.80	76	125,660	196	1.16	99	163,200	255	1.30
Aver.	60	93,905	147	1.37	87	130,270	204	1.39	99	149,255	233	1.14

Table II

ESTIMATED UNIT LOSSES IN VIRGIN STANDS - PLUMAS NATIONAL FOREST

Unit	Virgin Timbered Acreage	1938		1939		1940	
		Trees	Vol. MBM	Trees	Vol. MBM	Trees	Vol. MBM
Thompson Creek	19,200	840	1,606	960	2,639	1,320	4,420
Last Chance Creek	16,480	1,210	1,590	1,699	2,946	1,365	2,925
Ferris	11,740	1,376	2,089	2,256	2,981	2,568	2,860
Little Last Chance	26,240	1,763	2,962	2,091	3,435	2,706	4,461
Dixie Valley	11,030	1,103	1,864	1,309	2,162	1,706	2,813
Totals	84,690	4,529	10,111	8,315	13,763	9,665	17,479

Units without Estimates:

Cottonwood Creek	3,200
Beckworth	11,550
Long Valley	21,660
Honey Lake	19,020
Squaw Valley	5,230
Clover Valley	6,850

TABLE III

PLOT LOSSES IN CUTOVER AREAS - PLUMAS NATIONAL FOREST

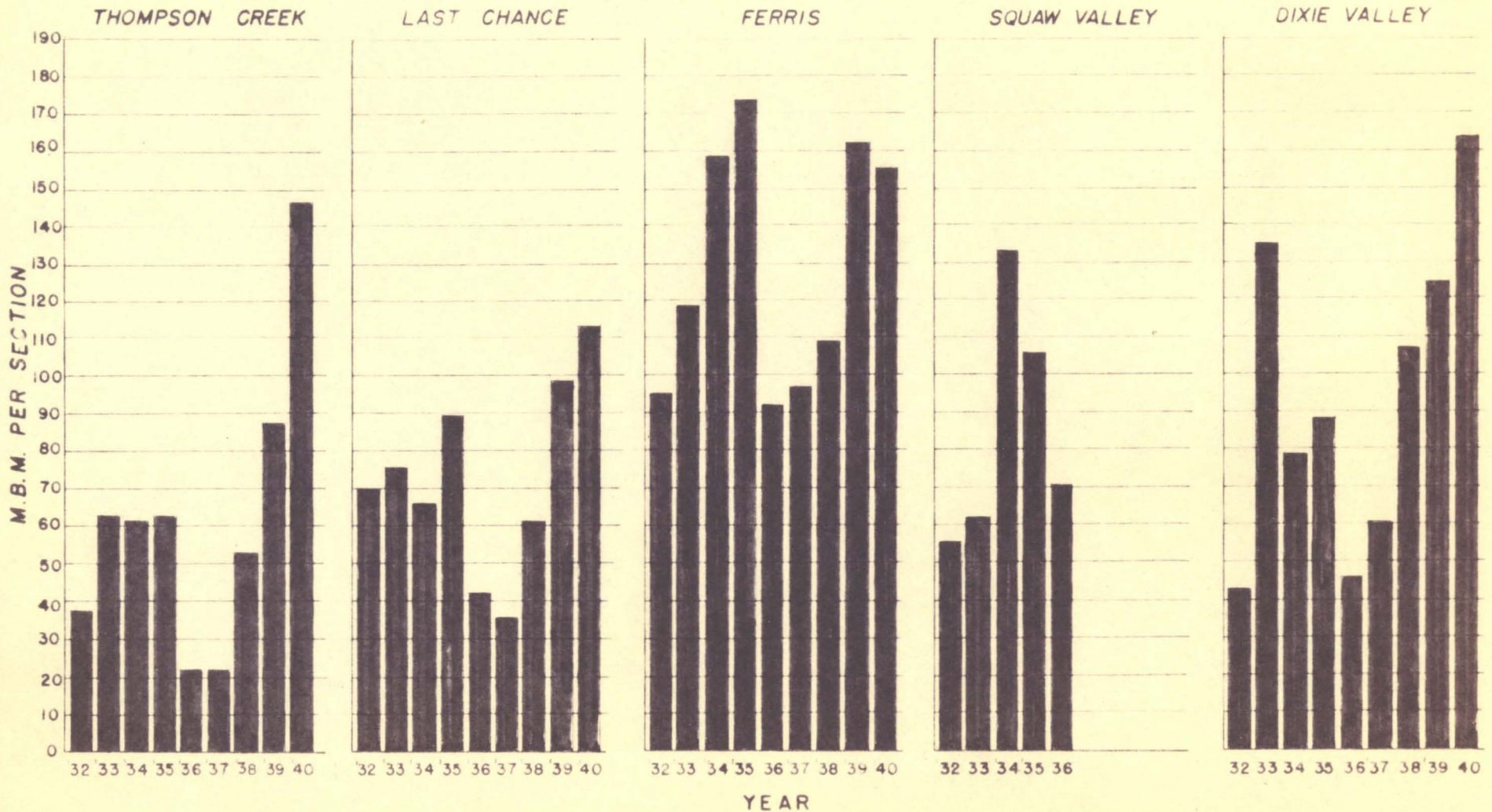
Plot No.	1938				1939				1940 (estimated)			
	Per Section		BM per acre	Ratio '38/'37	Per Section		BM per acre	Ratio '39/'38	Per Section		BM per acre	Ratio '40/'39
	Trees	Vol. B.M.			Trees	Vol. B.M.			Trees	Vol. B.M.		
00-23	24	7,440	12	.23	16	6,020	9	.81	26	10,350	16	1.72
00-24	34	13,220	21	.72	30	9,640	15	.73	52	27,460	43	2.85
P-5	54	16,620	26	--	52	14,300	22	.86	49	26,940	42	1.88
Aver.	37	12,427	19	--	33	9,967	15	.80	42	21,583	34	2.16

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INSECT LOSSES

1932 - 1940

EASTERN PLUMAS WORKING CIRCLE
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ANNUAL M.B.M. LOSSES PER SECTION BY UNITS

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..... BOUNDARY — UNITS
▨ PLOT

